Summary of the

U. S. Department of Agriculture

Livestock Exhibit

No. 1

SUMMARY OF U. S. DEPARTMENT OF AGRICULTURE EXHIBIT.

To help bring about a better public understanding of live-stock problems, the United States Department of Agriculture has prepared an exhibit that is largely pictorial, and designed along popular lines. It includes pictorial booths, special features, and supplementary attractions. As a guide to visitors and to help them get the greatest benefit from the exhibit, the department has issued a brief summary of the display, as follows:

Power of Meat.

Wholesome meat contributes toward a well-balanced meal. It is a source of energy for thought, for work and play and aids in maintaining health and vigor. This booth illustrates the great diversity of appetizing and nutritious meals that can be prepared from a variety of kinds and cuts of meat. A study of price variations aids in the selection of economical cuts. Livestock are of fundamental importance to permanent agriculture. The important service which our meat animals render to man is apparent from the fact that they feed largely on pasture, hay, cereal by-products and farm crops that man cannot use directly except to a very small extent.

Sheep on the Farm.

The profitable production of mutton and wool on farms is largely a matter of economical feeding and of handling sheep so that they may be kept thrifty and at the same time require a minimum of expense and labor. The system of raising sheep on temporary pastures is economical under intensive farm conditions. It increases the carrying capacity of the land and assists in maintaining health in the flock. The plan is shown by pictures and brief explanations.

Range Sheep Improvement.

The booth bearing the title "Range Sheep Improvement" shows the department's work in developing and improving types of range sheep. The headquarters for this work are at the U. S. Sheep Experiment Station, near Dubois, Idaho. The types used chiefly in seeking the ideal type of range sheep are the Rambouillet, Corriedale, and Columbia. The plan of breeding is presented and discussed briefly. An enlarged picture of the sheep experiment station near Dubois enables the observer to form an idea of the equipment and the nature of the country for which the sheep are adapted.

Live-stock Welfare.

"Runts: Cause and Remedy" presents pictorially the results of the department's inquiry into this practical live-stock question. It shows that inferior breeding and poor feeding are the chief causes of runty live stock, and that the suckling period is the critical time in a young animal's growth. Another panel tells how to combat contagious abortion when this disease enters a herd. Additional directions tell how to keep the disease out of healthy herds. What hog cholera costs the country both in hogs and in wasted feed is the topic of the third panel. The 30-million-dollar annual loss can be largely avoided through sanitation and the use of the preventive serum treatment.

Animal Health Safeguards.

A large map of the world shows the names and locations of serious live-stock diseases that occur in other countries, but from which the United States is free. This freedom is due not to good fortune, but to organized effort. The purpose of the map is to show the public what the department, through its animal quarantine service, is doing to exclude foreign plagues. Farmers are urged to respect and support this service, which is conducted for their bene-

Range Sheep Improvement

The booklet bearing the title "Range Sheep Improvement" shows the department's work in developing and improving types of range sheep. The headquarters for this work are at the U. S. Sheep Experiment Station, near Dubois, Idaho. The types used chiefly in breeding the ideal type of range sheep are the Rambouillet, Corriedale, and Columbia. The plan of breeding is presented and discussed briefly. In conjunction with the sheep experiment station, Dubois enables the observer to form an idea of the requirements and the nature of the country for which the sheep are adapted.

Live-stock Welfare

"Mastitis: Cause and Remedy" presents pictorially the results of the department's inquiry into this practical live-stock question. It shows that inferior breeding and poor feeding are the chief causes of fruitless live-stock, and that the suckling period is the critical time in a young animal's growth. Another paper tells how to combat contagious abortion when this disease enters a herd. Additional directions tell how to keep the disease out of healthy herds. What hog cholera costs the country, both in hogs and in wasted feed is the topic of the third panel. The 50-million-dollar annual loss can be largely avoided through sanitation and the use of the preventive serum treatment.

Animal Health Safeguards

A large map of the world shows the areas and locations of serious live-stock diseases that occur in other countries, but from which the United States is free. This freedom is due not to good fortune, but to organized effort. The purpose of the map is to show the public what the department, through its animal quarantine service, is doing to exclude foreign plagues. Farmers are urged to respect and support this service, which is conducted for their work-

fit. Every live-stock owner is asked to report promptly any strange disease, and especially any case that resembles foot-and-mouth disease.

Story of Farm Power.

The efficient and economical utilization of power for drawbar work on the farm is a vital problem. To help farmers see the value of tractor and horse power, the exhibit relating to the problem gives facts and figures obtained on a large number of Corn Belt farms. Graphic illustrations show that on these farms -- all of which use tractors -- about 70 per cent of the farm power was supplied by horses, the remainder being furnished by tractors. Comparisons of power costs, computed in September, 1921, prices of fuel, oil, and feed (other costs as of 1920) for different operations furnish the basis for many practical calculations.

Better Sires -- Better Stock.

Live stock well bred and well cared for has greater earning capacity than inferior animals. The national campaign for better sires and better stock directs attention to that fact and points out that good purebred sires will quickly improve the quality and productiveness of the average herd. It shows pictorially that some of the cattle bred centuries ago were of better quality than scrub cattle in the United States today, and that without definite breeding plans no farmer can expect to improve his animals. By contrast, another picture illustrates the improvement possible even in the first cross when a purebred bull is used. Other portions of the booth show the progress which the campaign has made.

In and Out of the Forest.

The National forests contain great areas of grazing land suitable for beef cattle and sheep. To demonstrate how the land is used under the depart-

[illegible]. Every live-stock owner is asked to report promptly any strange disease, and especially any with that resembles foot and mouth disease.

Where is Farm Power

The efficiency and economical utilization of power for farmers has been the last as a vital question. In this chapter we see the value of tractor and horse power. We shall be relating to the problem first and figures obtained on a large number of farm data cards. Graphs illustrating show that on these farms -- all of which use tractors, -- about 70 per cent of the farm power was supplied by horses. The remainder being furnished by tractors. Comparisons of power costs, adopted in September, 1921, prices of fuel, oil, and feed (other costs as of 1921) for different operations furnish the basis for many practical calculations.

Better Seed Beds - Better Crops.

Live stock will still and will need for has greater earning capacity, than inferior animals. The national campaign for better sires and better stock [illegible] to that fact and points out that good pedigreed sires will [illegible] improve the quality and productiveness of the average herd. It shows [illegible] that even in the cattle breed centuries ago were of better quality than most cattle in the United States today, and that without artificial breeding no farmer can expect to improve his animals. By contrast, another picture illustrates the improvement made in wheat in the first cross upon a [illegible] it is used. Other pictures of the seeds show the progress which is [illegible] one year.

In and Out of the Forest

The national forests contain about acres of growing and valuable timber and yields one thousand. In [illegible] the saw logs is used under the [illegible]

ment's permit system, this booth shows (1) live stock entering the forest, (2) typical forest grazing lands, and (3) the stock emerging from the forest in well-developed condition and ready for market. When not overgrazed, forest land is benefited by having live stock on it. One of the chief advantages is the reduced fire hazard. Grazing animals keep the forest comparatively free from long grass and small vegetation that otherwise would aid a forest fire to spread.

Accredited Herds.

A healthy herd of well-bred cattle -- that is the desire of every progressive cattleman, and the Department of Agriculture is helping him to fulfill it. The accredited-herd plan explained in this booth is a system of testing cattle for tuberculosis, so that disease can be eradicated at minimum cost to the owners through a system of indemnity for cattle found to be tuberculous. Besides, the cattleman whose stock passes the required number of tests receives a certificate that enables him to ship animals interstate without additional testing. The exhibit shows the losses which the industry suffers because of tuberculosis. The obvious remedy is to test the cattle, remove the diseased ones, and ultimately have a healthy, accredited herd.

Purebred Live Stock.

What proportion of the Nation's cattle, sheep, and hogs are purebred? Where are the purebreds located? What breeds are kept in greatest numbers? Maps, charts, and figures show, almost at a glance, the answers to these questions. The number and distribution of purebred live stock mean a great deal to everyone interested in choosing new breeds, in improving established herds, or in buying and selling purebred stock. The maps are based on the latest United States census, which is the first to enumerate purebred animals.

Additional Exhibit Features.

The trend of live stock compared with human population, federal meat inspection and other topics of interest are additional features of the exhibit. In most cases printed matter relating to the activities is available. To get it, visitors are invited to give an attendant their names, addresses, and the kind of information desired. The message that can be told in exhibit form is necessarily brief, but department representatives in charge of the booths will cheerfully answer questions.

> Get the benefit of the U. S. Department of Agriculture's investigations and experiments. Let it help you with your problems.

U. S. Department of Agriculture,

Summary of

LIVESTOCK EXHIBIT NO. 1

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This summary gives a short account of the information contained in each section of the Exhibit. The Exhibit is divided into booths, each booth treating a separate subject of the livestock industry, under the following captions:

Power of Meat
Sheep on the Farm
Livestock Welfare
Animal Health Safeguards
Story of Farm Power
Better Sires-Better Stock
Purebred Livestock
Swine Sanitation
Trend of Human Population
and Food Animals
Hides and Leather

Each booth is 13 feet wide across the face, 8 feet deep, and tapers to a width of 8 feet at the back. Each section of the booth is 8 feet long and 4 feet high.

UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit

POWER OF MEAT

One of the most important, palatable and nutritious articles of our diet is meat. It supplies the elements needed in building up and repairing the body tissues, and is a source of the energy which makes growth. In its production, many plant and animal products, such as cottonseed meal, tankage, fish meal, etc., practically valueless for any other use, are converted into food for man, and what would otherwise be a great economic loss is instead an immeasurably greater economic grain.

Meat contributes to the muscular force required in work calling for great physical strength, the endurance one must have to compete successfully and triumph in games of skill, the mental power indispensable in difficult business ventures and scientific achievements, and aids in maintaining health and vigor.

The tender, high-priced cuts of meat--steaks, tenderloin, chops, etc.,--are, we know, relished by nearly everyone, but the less expensive cuts are as nutritious, may be made just as appetizing, and will in time become even more popular, on account of their lower cost, when their proper preparation and cooking are well understood.

The idea of this booth is to bring out in as striking a manner as possible these basic truths about meat, with a view to encouraging its consumption in a sufficient amount to make a well-balanced diet. In this way our bodily and mental strength, endurance and vigor will be increased to the maximum, and the economic problem of placing the profitable production of livestock on a permanent and reliable foundation, will be well on its way to solution.

UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit

SHEEP ON THE FARM

Raising Sheep on Temporary Pastures: Farm sheep raising is profitable under favorable conditions of breeding, feeding and management. Demand is strong for good fat lambs, and sheep of the mutton type are well adapted to farms which furnish abundance of grass, forage, and grain for the production of quick-maturing market lambs.

In the crowded farming sections where land is high priced and it is essential to utilize each field intensively for maximum results from every acre, the temporary pastures such as wheat, oats and peas, soy beans, rape, etc., can often be used to advantage in supplementing permanent pastures and meadows at times when the blue-grass is dry and succulent pastures are urgently needed. Blue-grass pastures and hay stubble often become dry and sparse just when succulent feed is most needed to finish spring lambs for market. It also frequently happens that soy beans, rape, wheat or rye pastures are splendid for flushing ewes during the breeding season in August and early September before rains have freshened up the old pastures and meadows.

At "Sheep Acres" on the U. S. Experiment Farm, Beltsville, Md., sheep have been raised on temporary pastures for a number of years and the results of the experiments conducted there lead to the following conclusions:

1. Sheep can be successfully and economically raised with temporary pastures.

2. Numerous forage crops may be used for these pastures. The kinds used should depend largely upon the soil and climatic conditions in which they are to be grown.

3. More sheep can be raised per acre on temporary pastures than can be raised on permanent pastures on soils of equal fertility.

4. Pasturing sheep on annual crops makes it possible to rotate pastures more frequently and thus lessen the danger of infection by stomach worms and other internal parasites.

5. Temporary pastures, because they furnish an abundance of succulent green feed at all times, tend to increase the milk flow and make it more even throughout the lactation period, thus assuring rapid growth of lambs.

For further information see Farmers' Bulletin No. 1181
"Raising Sheep on Temporary Pastures"

UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit

LIVESTOCK WELFARE

"Runts: Cause and Remedy" is the caption for a section of this booth, which presents pictorially results of the Department's inquiry into this practical livestock question. It shows that inferior breeding and poor feeding are the chief causes of runty livestock and that the suckling period is the critical time in a young animal's growth. Parasites and insect pests are other causes of runtiness among livestock.

Another portion tells how to combat contagious abortion when this disease affects a herd. Abortion is incurable by any known medicinal remedies, but by understanding the nature of the disease and how infection is carried, livestock owners may prevent its introduction. In the case of affected herds the chief precaution is to isolate all "aborters" and to destroy every possible source of infection. The section gives directions for handling affected herds.

What hog cholera costs the country both in hogs, labor, and wasted feed is the topic of the third section. The $30,000,000 annual loss can be largely avoided through sanitation and the use of the preventive serum treatment. The section contains also a pictorial comparison between a victim of hog cholera and a healthy hog.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit

ANIMAL HEALTH SAFEGUARDS

To show the public some of the dangers to the livestock industry of infection from abroad, a large map of the world shown in this booth gives names and locations of serious livestock diseases that occur in other countries. The United States is free of the diseases named but maintains its security in this respect only through effective quarantine measures. The freedom is thus due not to good fortune, but to organized effort.

Of the various foreign plagues affecting domestic animals, foot-and-mouth disease is especially dangerous owing to the rapid manner in which it spreads and to its prevalence in countries with which the United States maintains a great deal of commerce. The section dealing with foot-and-mouth disease gives directions for the proper steps to take should foot-and-mouth disease, or any other strange disease, make its appearance. The first and most important step is to isolate all suspected animals and then notify the State veterinarian and an official of the Bureau of Animal Industry, U. S. Department of Agriculture.

The booth points out that animal health is the basis for animal wealth and is aimed to assist livestock owners in recognizing and helping to control animal diseases from abroad.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit

STORY OF FARM POWER.

Efficient and economical use of power for drawbar work on the farm is a vital problem in present-day agriculture. To help farmers and agricultural workers understand the comparative values of tractor vs. horse-furnished power, for doing various farm operations, the "Story of Farm Power" exhibit gives facts and figures obtained from a cooperative survey made in the Corn Belt States of Ohio, Indiana, and Illinois in the fall of 1920.

This survey was made by the U. S. Department of Agriculture cooperating with the State Colleges of Agriculture of the States mentioned and covered 286 representative farms in that region, on all of which both tractors and horses were owned and used as sources of farm power.

The average size of the farms visited was 258 acres. Their power equipment varied as follows: Tractors, 174 farms owned 2-plow tractors, 104 farms had 3-plow tractors, 6 farms used 4-plow tractors; Horses, average number owned by each farm was 6.8 head, the individual holdings varying from 2 to 11 animals.

Graphic illustrations taken from the survey data bring out the fact that tractor power has its advantages for some classes of farm work, but that there are many other operations for which horses are better suited. The data showed that in general 70 per cent of all the farm power was furnished by horses and 30 per cent by tractors, the individual distribution among the major farm operations being as follows: Tractor, 35 per cent of plowing, 66 per cent of disking, harrowing, etc., 41 per cent of cutting grain; Horses, 97 per cent of all seeding, 97 per cent of cultivating, 92 per cent of haying, 100 per cent of road hauling. The average use of tractors in work days per year was 30.8 and the average number of full days' work per year per horse was 68.6.

Comparisons of power costs, computed on a basis of September 1921 prices for fuel, oil, and feed, (other costs as of the 1920 survey) bring out the fact that horses and tractors furnished drawbar power per acre of operation as follows: Plowing, tractor, $1.72, horses, $1.57; disking, tractor, $0.55 - horses, $0.34; disking in combination, tractor, $0.59,- horses, $0.52; harrowing, etc. tractor, $0.30, horses, $0.18; drawing hay loader, tractor, $0.91, horses, $0.52; drawing grain binder tractor, $0.55, horses, $0.31.

Yearly tractor costs per farm consisted of $185 for depreciation while the oil and fuel consumptions were 30 and 550 gallons respectively and minor costs totalling $79. Yearly horse costs per farm show that the following amounts of feeds were required: Oats, 150 bushels; corn 255 bushels; 9 tons hay; 14 acres corn stalks; 15 acres grass pasture; 10 tons straw and fodder, together with minor costs totalling $170.

UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit

BETTER SIRES--BETTER STOCK

Livestock well bred and well cared for has greater earning capacity than inferior animals. The national campaign for improved livestock directs attention to that fact and points out that good purebred sires will quickly improve the quality and productiveness of the average herd.

A portion of the booth shows steps in the progress of the better-sires campaign. More than 10,000 livestock owners have signed the simple enrollment blank illustrated and have thereby declared their intention to use purebred sires for all stock kept. The exhibit shows what one typical county (Pulaski County, Va.) has done in a short time. In that county, when the report was made, more than 300 farmers had placed their farms on a purebred-sire basis, and in three years had improved their cattle, sheep, hogs, and poultry from 50 to 75 per cent. The number in that county now exceeds 500 farmers who use purebred sires exclusively and improvement is continually taking place.

Copies of a poster and other printed matter illustrating the value of good breeding are shown. This material is furnished by the Department free of cost.

Another portion of the exhibit shows a comparison between a bullock raised in Egypt at least 56 centuries ago, and a scrub bull recently marketed at the Union Stock Yards, Chicago. This comparison, which is favorable to the Egyptian bullock, shows that livestock deteriorates unless it is bred and cared for properly. In comparison with the scrub bull bred and raised in the United States by a careless farmer, there is shown a family trio of a purebred bull, common cow, and grade calf illustrating what a good farmer did with a purebred sire at the first cross.

The exhibit contains also a list of opportunities which the ancients did not have. Among these are Farmers' Bulletins, records of breed associations, farm papers, farmers' institutes, livestock shows, and county extension agents.

Another portion of the booth shows that the use of purebred sires yields a better market for feed. A razorback hog, for example, takes about two years to mature, whereas purebred hogs reach a desirable market size in 8 months. More feed goes into marketable meat and less into mere maintenance.

UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit

PUREBRED LIVESTOCK

Purebred Swine. Hog feeding on a large scale has developed in those States where corn is produced in abundance. The Corn Belt States represent the hog belt also, and because of the greater efficiency of well-bred hogs over those of inferior breeding in the conversion of feeds into meat, it is but natural that the purebred hogs should be found in greatest numbers where feeds are most plentiful and hogs most numerous.

The numbers of purebred hogs are in direct relation to the numbers of hogs in the different states. Those breeds of hogs which originated in the United States far outnumber the other breeds, and the lard-type hogs are greatly in excess of the bacon type in numbers. These facts are plainly stated in the section illustrating "Where the Nation's Purebred Swine are Located."

Only registered purebred hogs were enumerated in the 1920 census and the figures indicate therefore only a part of the hogs actually of pure breeding. The Duroc-Jersey and Poland China breeds represent more than three-fourths of all the purebred hogs in the country. Lard-type hogs of pure breeding represent 99.4 and bacon-type hogs only 0.6 of all purebred hogs in the country.

The map in this booth represents the distribution throughout the United States of all registered hogs of pure breeding.

Purebred Sheep. Purebred sheep are most numerous in the Western States, according to the 1920 census. The five States having the largest number were, Idaho, 47,107; Ohio, 39,444; Oregon, 38,738; Utah, 30,013; and California 28,831. In the farm States the majority of purebred sheep are found in the Corn Belt and Great Lakes regions. In the range States they are most numerous in the north. The greatest scarcity of purebred sheep was in Arizona, the Great Plains, the entire Southeast, and the Atlantic coast.

The five breeds having the most purebreds were; Shropshire, 124,453; Rambouillet, 106,819; Merino, 59,876; Hampshire, 51,813; and Oxford, 16,589. There was a total of 35,033,516 sheep on farms and ranches and only 463,504, or 1.3 of them were purebred. Of all the purebred sheep 54.1 were of the medium-wool breeds, 42.2 were fine wools, and 3.7 long wools.

UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit

PUREBRED LIVESTOCK (CONTINUED)

Purebred Beef Cattle. Approximately 75 per cent of the purebred beef cattle in the country are in a triangular area, the points of which are located in central Ohio, central Texas and northwestern North Dakota. Iowa, according to the 1920 Agricultural Census, had one-seventh of all purebred beef cattle in the United States. A little over 3 per cent of all beef cattle are registered and 11 per cent of all farms having beef cattle report some purebreds. Nearly 50 per cent of all farms having beef bulls report purebred beef bulls.

The beef breeds found in the United States are Shorthorns, Herefords, Aberdeen-Angus, Galloway and Devon, and, according to the 1920 Census, rank in the order named above. The Shorthorns predominate in the Middle West, 75 per cent of the total being in the Corn Belt. Herefords predominate in the western part of the Corn Belt, and in the Great Plains area. They outnumber all other beef breeds in the Rocky Mountain region.

The Corn Belt possesses most of the Aberdeen-Angus cattle, Iowa alone having one-fourth of the total number in the United States. The Galloway and Devons are but few in number. The former are found in greatest numbers in the States of Kansas and Nebraska, the latter in the New England States.

UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit

Swine Sanitation

ROUNDWORM EXHIBIT

What it shows. This exhibit shows that suitable sanitary surroundings are important in producing healthy and worm-free pigs, and that unsuitable and insanitary surroundings tend to produce diseased and wormy pigs. No exhibit is necessary to show that healthy pigs make money for you and that diseased pigs cause you to lose money. Experience shows that worms are among the most important causes of disease among swine. Therefore the fact that the application of the swine sanitary system described below has in many cases converted an unprofitable swine-raising business into a profitable one is of vital interest to hog raisers.

What harm do worms do? They kill many young pigs and convert many others into runts. Thumps in young pigs are commonly due to worms, and many young pigs die of thumps. Worms are especially harmful to young pigs. Dead pigs and runts cost money. They mean lost pork production, lost feed, lost breeding expenses, lost labor, and lost overhead costs.

How do worms injure pigs? The large roundworms live as adults in the intestines of the pig. The females produce enormous numbers of very tiny eggs which pass out in the manure. The young worms develop in these eggs, just as a chick develops in an egg, in as little as 10 days to the stage where they will infect pigs. What chance has the little pig of avoiding these millions of eggs scattered through the manure in a dirty hog lot? Not a chance! He gets them, plenty of them. The eggs hatch in the pig's intestine and the young worms then leave the intestine through the walls, get into the blood stream, and go to the liver; they leave the liver, go to the heart and are carried in the blood to the lungs. Here they bore out of the blood vessels and enter the air passages. In doing this they tear the delicate tissues of the lungs, causing little bleeding spots. This injury gives rise to thumps and pneumonia, from which many little pigs die. If they don't die, they experience a severe setback and many of them become unprofitable pigs--runts. In the surviving pigs the young worms come up the windpipe, are swallowed and on reaching the intestine this second time they settle down, grow and take food from the pig and convert it into worm eggs.

How can you prevent losses from worms? To prevent losses from worms you must protect your little pig. He can't save himself from worm eggs in a hog lot that swarms with them. He will get them with every mouthful he nurses from a dirty sow. But if you will protect him from worms until he is four months old he will be resistant to worms. Few worms will ever

UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit

Swine Sanitation

ROUNDWORM EXHIBIT (CONTINUED)

develop in him after that age and those that do will cause less damage than the same number would in a younger animal. To protect the baby pig use the system of swine sanitation developed by the U. S. Department of Agriculture and tested for over three years in McLean County, Illinois, with striking success. Last year over 10,000 pigs were raised in that county under this system. The system is being used in many other places. It costs only a little labor and thought and it pays big returns on the investment. There is no limit to the number that can share in this investment. Why not take stock in it yourself?

Here's the system. Before farrowing, clean the farrowing pens thoroughly with hot water, soap and lye.

Before putting the sow into the farrowing pen, wash her thoroughly with warm water, soap and a brush, paying especial attention to the udders.

Within 10 days after farrowing haul the sow and pigs from the farrowing pen to a pasture that has had no pigs on it since it was sown to a forage crop.

Keep the sow and pigs there, away from other pigs, for at least 4 months, giving them plenty of clean water and shade.

That's all! There is no hocus-pocus, no initiation fee, no ceremony. It is very simple; most of the good and valuable things in life are simple.

The system was devised to protect swine from worms. You will find that it will protect swine from many diseases and protect you from financial losses due to them.

The exhibit tells the story, but lest you forget the details write to the department for a copy of the article on swine sanitation.

UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit

TREND OF HUMAN POPULATION AND FOOD ANIMALS IN THE UNITED STATES

In much the same manner that the books of a business establishment show the degree of financial success, statistics of the livestock industry are useful in judging its development and opportunities. The chart shown in this panel tells how the number of food animals has increased or declined since 1850.

A line showing the increase in population appears on the chart for comparison. Among interesting events of a statistical character is the fact that the population exceeded the number of swine in the country in 1863, the number of sheep in 1873, and the number of cattle in 1893. Since 1893 the population has been rising, but the production of food animals shows a general falling off about that time in comparison with human population.

While there are periods when the markets seem oversupplied, the chart indicates that in general, production of meat animals is lagging behind population. In the face of such a situation good farmers should follow the best known practices in breeding, reduce production costs to the minimum by economical feeding and sell the animals produced most advantageously.

UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit

HIDES AND LEATHER.

The attention of stockmen is directed especially to the "Hides and Leather" exhibit containing samples of actual leather. Fifty per cent of the hides and skins used in the United States are imported. Our domestic supply, which comes either directly or indirectly from stockmen, from the farms and ranges, is totally inadequate. It therefore is well for us to develop our supply to the utmost and to eliminate waste that we may lessen our dependence on foreign sources. In the beef packing business roughly 10 per cent of the total returns is obtained from the hide.

Good hides and skins mean good leather. Good leather means greater serviceability and eventually less costly leather. The quality of the hide goes back to the life of the animal. Protection of the hide from the ravages of pests and from mistreatment by man is as necessary as is good stock. A hide riddled with grub holes, or pocked with tick bites, or seared with brands, or damaged from horn marks and wire cuts represents a loss in value and in leather.

Proper skinning and curing are particularly important. Much of the value of a hide or skin depends upon the "take-off." A hide of first quality must be free from cuts and scores and must be clean and of correct pattern. It must be free from meat and flesh. A fresh hide is like so much fresh meat; it must be promptly cured or it will spoil. A properly cured hide makes good leather; a rotten hide is a complete loss.

The results of failure properly to care for hides and skins is strikingly shown by these exhibits. Failure is avoidable to a large extent, if not entirely. The farmer, as a class, is the largest user of leather. He consequently is vitally concerned in its serviceability. As a rule a farmer uses his harness for less than 10 years; if proper attention is given to its manufacture, selection, and use, it should last 20 years longer. Belts for machinery often become impaired, if not useless, within a few years. A good leather belt, suited to the work, properly installed and cared for, will run for from 10 to 30 years. Every pair of shoes, every machine belt, and every piece of harness that is allowed to go to waste or that is not made to yield full service represents a loss to its owner.

Select leather articles, therefore, suitable for the work at hand. Care for them by regular and frequent cleaning, oiling and dressing. Make all repairs promptly and properly. Help conserve our leather supply!

For detailed information on hides, skins, and leather ask for Farmers' Bulletins 1055 and 1183, which will be sent free of charge.

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United States Department of Agriculture
UNITED

DESCRIPTION OF

LIVESTOCK EXHIBIT

"THE STORY OF LIVESTOCK FARMING"

The exhibit which is very briefly described on the following pages tells "The Story of Livestock Farming."

The Corn Belt and some adjacent areas have been given special attention because of the well-balanced systems of livestock farming which are practiced in those sections.

Representatives of the Department accompanying the exhibit are ready to explain to visitors the various lines of the Department's work and to discuss livestock matters generally.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit
"The Story of Livestock Farming."

"LIVESTOCK FARM ORGANIZATION."

The exhibit entitled "Livestock Farm Organization" is based on a study of one year's business from June 1, 1922, to June 1, 1923, on a 240 acre cattle-feeding and hog-producing farm in Burt County, Nebraska. An enlarged photograph painted in colors shows a view of the farm buildings with the fat steers a few days before they were marketed, and some of the other livestock on this farm.

During the crop year 1922, 130 acres of the 240 acres in this farm were in corn, 43 in oats, 28 in alfalfa, 30 in pasture and 9 acres in farmstead. The livestock kept included 43 steers from September to May; 28 sows which raised 175 pigs; 5 cows, 5 heifers and 7 work horses.

The 43 steers were bought in Omaha in September, 1922, averaging 595 pounds, at $6.75 per hundredweight, and sold the following May on the same market averaging 1,027 pounds, at $9.80 per hundredweight. They returned 85 cents a bushel for the corn they ate when corn was worth only 67 cents, besides furnishing a market at fair values for considerable hay and pasture.

The 28 sows produced 175 pigs, 17 of which died during the year. The 44,000 pounds of pork (live weight) raised on this farm was apparently produced very economically although no record was kept of the amounts of feed fed to the hogs.

The following is a summary of the year's business:

Receipts		Expenses		Income	
Hogs	$3,187	Labor	$922	Receipts	$7,503
Fattening cattle	2,447	Repairs and depreciation	734	Expenses	2,725
Corn on hand	1,497	Taxes	346	Farm Income	4,778
Miscellaneous	372	Veterinary	184	Less 5% on investment	2,665
Total	$7,503	Feed bought	170	For farmer's labor and management	$2,113
		Threshing	162		
		Other expenses	207		
		Total	$2,725		

In addition the farm furnished farm-grown products used for the family worth about $400, and a house that would cost at least $200 a year if rented.

A study of the year's business from a farm-management standpoint shows the principal reasons why this farm was profitable. It was a fairly large business whether measured in acres, investment or amount of business done. As much corn (the crop best suited to the region) as possible was grown and it was marketed in several ways, through cattle and hogs, or as corn. The livestock enterprises also gave employment during the winter, utilized roughages and conserved fertility. In other words the farm was well balanced. It also had fair crop yields and used labor efficiently. It had very good production of beef and pork, its principal enterprises. A study of the year's business shows that this farm was well managed as it paid the operator $175 a month for his time above all expenses and 5 percent interest on investment.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit
"The Story of Livestock Farming."

"FEEDS FOR LIVESTOCK - PASTURES."

This exhibit illustrates the value of pasture as a feed for livestock, and some of the steps necessary to produce good pastures.

A summary of feeding tests shows the value of clover or alfalfa pasture in pork production. In these tests growing pigs were fed corn and tankage both on clover or alfalfa pasture, and in dry lots. Nineteen pigs, on the average, were carried from a weight of 52 pounds to the end of the pasture season. The pigs fed corn and tankage on clover or alfalfa pasture made a daily gain of 1.31 pounds, and required only 370 pounds of corn and 24 pounds of tankage for 100 pounds gain. The pigs in dry lot, although receiving the well-balanced ration of corn and tankage, gained only 1.13 pounds daily and required 410 pounds of corn and 40 pounds of tankage for 100 pounds gain.

On an average an acre of clover or alfalfa pasture saved 1,149 pounds of corn and 468 pounds of tankage, compared with the dry-lot feeding. In addition, 2,326 pounds of hay were cut from each acre of pasture in those tests in which the weights of hay were reported. Further advantages in favor of feeding the pigs on pasture are the more rapid gains of the pigs, and the fertility added to the soil through the growth of legume hay.

Bluegrass is the most important of the cultivated pasture grasses in the United States. The right section of the exhibit shows the important points which must be observed in producing good blue-grass pastures. They are listed as follows:

1. Close grazing to keep grass of good quality and prevent weed growth.

2. Occasional mowing if necessary to keep down weeds.

3. Top dressing with manure or phosphate to increase the growth of grasses.

4. Before grazing in the spring, let grass get two inches high.

Good temporary or rotation pastures can be made of: Hay mixtures, sweet clover, alfalfa, soy beans, red clover, small grains and grain stubble.

More detailed information about pasture management or the utilization of pastures by livestock may be secured by writing to the Department for bulletins on the subject.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit
"The Story of Livestock Farming."

"FEEDS FOR LIVESTOCK - SILAGE."

The exhibit on silage enumerates some of the crops that may be used for silage, gives some of the reasons why silage is a good feed for livestock, and cites some feeding experiments in which the value of silage as a feed for livestock has been tested. In addition glass jars, on exhibition, contain samples of silage made from corn, from sorghum and from sunflowers.

The center section of the exhibit gives the results of an experiment conducted by the United States Department of Agriculture and the West Virginia Agricultural Experiment Station to test the value of corn silage for the beef breeding herd. The results showed that corn silage was worth 60 per cent more than shock corn for wintering mature beef cows. An illustration shows some of the animals that were used in these tests.

On the same section of the exhibit are the results obtained by the Illinois Agricultural Experiment Station in an experiment which showed that for growing beef calves an acre of corn silage was worth 30 per cent more than an acre of shock corn.

The right section lists the reasons why silage is a good livestock feed. They are as follows:

Silage creates an appetite for less palatable and cheaper roughages.

Silage is eaten practically without waste.

Silage enables the stockman to keep more animals on the same area of land.

Silage is more palatable than the same crops fed dry.

Silage provides succulence at any desired time of the year.

The left section enumerates the crops that may be successfully used for silage. Corn is the principal crop used for silage, but in regions where sorghums do better than corn, they make excellent silage too. Vetch and oats, sunflowers, sweet clover, alfalfa, and soy beans also have been made into silage with good results.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit
"The Story of Livestock Farming."

"FEEDS FOR LIVESTOCK - HAY."

This exhibit shows how expenditures for freight may be greatly reduced by marketing hay in the form of livestock. According to experiments carried on by several western experiment stations steers weighing 1,000 pounds will consume about 30 pounds of alfalfa hay per head per day. At this rate, 20 steers will consume 45 tons of alfalfa hay in 150 days, when they should be in condition to market. At a certain town in western Nebraska, which may be called Hayville, 443 miles from Omaha, the freight on 45 tons of alfalfa hay in 4 cars is $283.20, while the freight on 20 steers in one car is $91.30. This amounts to a saving of $191.90 or $4.26 per ton on 45 tons of hay.

On the other hand all hay can not be fed to cattle and other livestock on the farm where it is raised. The demand for hay is so great in cities and on dairy farms on high-priced land that it is more profitable for some farmers to sell hay. However as the distance from market increases it becomes less advantageous to ship hay, which is comparatively cheap in proportion to its weight. Consequently, cattle and other livestock which may be made more valuable by feeding them hay, and which are worth more per pound than hay, are the chief products shipped from the more distant markets, in districts not well adapted to grain production. There is much hay produced where the distance from market is so great that the market price will not pay the expenses of hauling and shipping. Livestock is the only means of marketing such crops to advantage.

Regardless of the distance from market, the feeding of hay to livestock has a great advantage over selling the hay off the farm, on account of our very serious problem of conserving soil fertility. Soil from which hay is continually sold off must be avandoned eventually. That may have been expedient at one tim, but it is no longer practicable as our supply of new land suitable for cultivation is practically exhausted. Keeping livestock and assiduously returning the fertilizing elements to the soil in the form of manure is a practical way at present of keeping our farms productive.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit
"The Story of Livestock Farming."

"FEEDS FOR LIVESTOCK - CORN."

This exhibit enumerates some of the practices that must be observed in growing a good corn crop, tells how corn must be fed to get the most out of it, and gives some figures on the uses of corn based upon estimates by the Department.

One of the first considerations in plans for a better corn crop is the seed used and the seed bed in which it is planted. The yield is greatly influenced by the quality of seed that is planted, and if good seed is planted care should be taken to see that the field is well prepared for corn and well cultivated until the corn is mature. Protection from injury by insect pests such as the corn ear worm and the European corn borer, and protection from destruction by rodents such as the 13-lined ground squirrel, often makes the difference between a good corn crop and a poor one. Limited space does not permit giving details of good corn culture in the exhibit, but those who wish detailed information on the subject may obtain it by writing to the Department for bulletins on the subject.

The important point to remember when feeding corn is that it is not a complete and well-balanced feed by itself, and that it should be combined in the ration with feeds containing larger amounts of protein. For cattle, green legumes, legume hay or a protein meal should be added to corn to make the ration well balanced. In a three-year experiment with yearlings and 2-year-old steers in Nebraska, corn and legume hay produced 37 per cent more gain than practically the same amounts of corn and prairie hay. In hog feeding, the value of corn is increased 33 per cent or more by feeding suitable protein feeds such as tankage or skim milk with it.

The right section of the exhibit shows in graphic form the uses made of the corn crop in the United States in an average year. More than 85 per cent is fed to livestock and somewhat less than 10 per cent is used directly for food. The hog is the largest direct consumer of corn; 40 per cent of the total crop is fed to swine on farms. Horses and cattle, it is estimated, account for 20 per cent and 15 per cent, respectively. The next largest use of corn is for human food, 10 per cent of the crop being consumed on farms and ground in merchant flour mills (principally for food). The exports of corn as grain have been almost negligible.

A detailed study of corn crops of the United States is contained in the 1921 Yearbook of the Department.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit
"The Story of Livestock Farming."

"SIR LOIN OF T-BONE RANCH."

The Department will release its new motion picture entitled "Sir Loin of T-Bone Ranch" in this exhibit, and make regular showings of it at one end of the exhibit room.

This film features beef-cattle production in Western range areas. Its purpose is to show how attractive is the life of a progressive Western cattleman, to stimulate the production of good beef cattle, and to encourage the use of forequarter meat. In the story, Robert West a progressive cattleman, and proprietor of T-Bone Ranch in the West, leaves his ranch with a fine drove of fat steers for market. On arrival at the market he tops the market as usual with his T-Bone cattle.

Before returning to his ranch he calls on his Aunt who lives near this market. He is invited to stay for dinner as is also Virginia Lee, a friend of his cousin Alice. Robert relates stories of range life and Virginia says that she imagines range life must be "pretty tough." Robert and his Aunt think she refers to the meat which he is having some difficulty in cutting. His Aunt quickly explains that she told the butcher to send her the best piece of meat he had, and Robert says that the only way to make sure of getting a good piece of meat is to know what constitutes a good piece of meat and to make your own selection. He offers to give his Aunt a few pointers on meat the following day.

The next day they visit the yards where they compare good cattle with common ones, then go to the coolers where they compare carcasses of different grades, and finally the retail market where Robert explains that it is possible to get a good piece of meat out of the forequarter, if from a choice carcass. Following these instructions Aunt Jessie selects an excellent roast, which happens to be from the forequarter.

Robert returns to T-Bone ranch. Later Virginia Lee accepts an offer from a teacher's agency of a school in the West. One day while attending a rodeo she again meets Robert West. His mother invites her to visit the ranch before returning East. Robert calls for her on the last day of school and takes her to T-Bone ranch. At dinner Virginia praises the meat and takes a second helping. Robert boasts that it is meat from T-Bone ranch, where they have good cattle and good feed which is so necessary in the production of choice meat. He also gives considerable credit to "Sir Loin." Virginia assumes that "Sir Loin" is the foreman of the ranch.

The following day Robert shows Virginia the magnitude of the ranch. They visit the summer range which extends 10,000 feet above sea level, where Virginia sees a round-up. They return to headquarters by way of the hay meadows which furnish the winter feed. Virginia asks to meet Sir Loin, and is surprised when Robert shows her a beautiful purebred Hereford bull, the highest priced bull on T-Bone ranch, but after all the cheapest.

Virginia returns East, but she has fallen so much in love with the West that she expects to return, but not to teach.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit
"The Story of Livestock Farming."

"MAKING MONEY WITH HOGS."

Some of the important points in successful hog raising are illustrated by a series of pictures and legends thrown upon a screen by a continuous film stereoptican. The screen is located inside a full-sized model of a colony-type hog house. Following are the legends which are used to tell the story:

A good purebred boar is practically a necessity for profit in producing market hogs.

Well-bred sows of good type from strains of known prolificacy must be used.

A gilt should not be bred before she is well developed.

Pasture, or alfalfa hay and protein concentrates should be used with grain during the gestation period.

Clean, dry and well- bedded and ventilated quarters, equipped with a guard rail should be provided for the sow at farrowing time.

Farrowing time is a very critical time. Give every needed attention to the sow and litter.

Sow and pigs should have access to good pasture after farrowing.

Provide a self-feeder in the creep for pigs as soon as they will eat grain.

No class of hogs need pasture more than growing pigs.

For best results, pigs must be kept free from lice, worms and disease.

Using self-feeders for grain and tankage or fish meal is good practice, when sows and pigs are on pasture.

Hogging-down corn with a protein supplement such as tankage, given in self-feeders is satisfactory and profitable method of fattening hogs.

Of the 48,000,000 hogs slaughtered under Federal inspection last year, about 15 per cent of them showed tuberculosis to some extent.

Leading packers are paying 10 cents more per hundredweight on hogs originating in counties free or nearly free from bovine tuberculosis.

Hog cholera, the most destructive hog disease, is preventable by proper methods of sanitation and immunization.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit
"The Story of Livestock Farming."

"RAISING SHEEP FOR PROFIT."

Some of the rules of good sheep husbandry are presented by a series of pictures and legends thrown upon a screen by a continuous film stereoptican. Following are the legends which are used to tell the story:

On an extra good pasture, at breeding time, a flock of ewes will produce 15 or 20 lambs more per 100 than a flock of similar ewes on poor pasture.

Purebred rams, desirable in type, fleece, and form, sire more profitable lambs than scrub rams.

Save feed and give the necessary exercise by keeping the flock on pastures, meadows, or stubble fields in the fall when weather will permit.

Keep ewes thrifty. Feeding good legume hay during the winter helps them to produce strong lambs.

Insure a good milk supply for lambs by feeding the ewes 1/2 to 3/4 pound of grain (oats, bran, and corn) a ewe a day from a month before lambing until pastures are plentiful.

Keep lambing ewes and their lambs in individual pens until the lambs are well mothered.

Lambs properly docked and male lambs castrated bring from $1 to $2 per 100 pounds more on the open market. These operations cause least trouble when the lambs are 7 to 14 days old.

Shear on a clean, well-swept floor. Dirt in the fleece reduces its market value.

Roll the fleece neatly and tie it with paper fleece twine. Fibers of binder twine and other rough twine mix with the wool and injure its value for cloth.

Keep the lambs healthy by rotating on permanent pastures or fresh forage crops.

Stomach worms may be controlled by proper treatment of sheep and lambs with copper sulphate solution.

Lambs weighing from 75 to 85 pounds when in finished condition are preferred by the markets. Lambs much heavier are less desirable and usually bring lower prices per pound.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit
"The Story of Livestock Farming."

"HORSES FOR POWER."

Horses are the most flexible source of power for farm use, readily lending themselves to the work to be done. A recent test demonstrated that a two-horse team can exert a pull of as high as 21 horse power. It is the common practice to use one, two, three, four, five or six horse hitches in various farm operations, adapting the hitch to meet the power need.

Horse power is characterized by its versatility and adaptability to perform various farm operations. The horse is not limited either by the topography of the ground or by his ability to perform only one farm task economically, for he may be used equally well in plowing, harrowing, cultivating, seeding, haying, threshing, and farm and custom hauling under varying conditions.

The horse is self-replacing, earns its keeps and increases in value up to the marketable age. Farmers may breed enough mares yearly to replace the marketed stock, thus disposing of mature animals at a profitable figure. The young stock raised under this plan continually increase in value from birth to time of disposal and, at the same time, pay their way by performing the farm work.

Where horses are kept, soil fertility is conserved and there is no direct cash outlay for power as the horse consumes home-grown feed.

The farm-labor problem may be partially solved through the production of good horses. Where farmers are dependent upon their families for help, horse production furnishes the element of human interest necessary to keep the youngsters home on the farm.

Market Classes of Mules.

On the market, mules are classified according to their use, being grouped into five general classes: Draft; farm; sugar; cotton; mining.

The draft class includes the largest mules, standing from 16 to 17-1/2 hands and weighing from 1,200 to 1,600 pounds. They are used primarily for heavy teaming in cities; contract jobs; and lumber camp work.

Farm mules vary greatly in type and quality because the demand for a specific type is not well defined. They range in height from 15-1/2 to 16 hands and in weight from 900 to 1250 pounds.

Animals of the sugar mule class are characterized by ranginess, style and quality. In type, they stand as intermediate between the draft and cotton mule classes. They range in weight from 1,150 to 1,300 pounds and in height from 16 to 17 hands.

The cotton mule is generally lighter, more angular than the sugar or surface mining mule, but heavier than the pit mule. In height, the cotton class varies from 13-1/2 to 15-1/2 hands and in weight from 750 to 1,100 pounds.

Mining mules vary greatly in height and weight depending upon their use. The pit mule of this class weighs about 600 pounds, while the surface type may scale up to 1,350 pounds. The range in height is from 12 to 16 hands.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit
"The Story of Livestock Farming."

"SAVE YOUNG ANIMALS."

Infant mortality among livestock is a source of great loss in all sections of the country. Many of the losses are preventable by the farmer himself, and in stopping these losses he increases the numbers of animals raised without increasing his breeding herds, thereby increasing his chances for profit without an additional outlay of money. This exhibit points out some of the losses among young animals and some means of preventing them.

Losses of young animals are caused by predatory animals such as wolves, mountain lions, coyotes, bobcats and bears; diseases such as tuberculosis, hog cholera, blackleg and white diarrhea; parasites such as intestinal roundworms, lung worms, stomach worms, and lice and mites; insects, such as screw worm injury to calves in the Southwest; storms and injurious weather changes; poor equipment and, insufficient shelter; and poor management resulting in improper breeding and feeding methods, and carelessness.

Tuberculosis and hog cholera are two of the worst enemies of young animals. Four calves out of every hundred in infected herds are tuberculous, and 15 hogs in each 100 slaughtered under Federal inspection show lesions of tuberculosis. Milk fed to calves and pigs should be cooked unless from tuberculosis-free cattle. An average of 2 hogs die of hog cholera each year on each hog-raising farm in the United States, Costing farmers $30,000,000 annually. Much of this loss can be prevented by keeping hogs in sanitary quarters, isolating new stock for 15 days, burning or burying deep all animals that die on the farm, avoiding the feeding of raw garbage containing pork scraps, and immunizing hogs when cholera appears in the neighborhood.

A study made by the Department in cooperation with State colleges on 168 farms in Indiana, Illinois, and Iowa, showed that 35.8 per cent of the 1922 spring pig crop died before weaning time. A total of 18,837 pigs were farrowed on those farms that spring, and 6,749 of them died before weaning. Following is a list of the losses with a list of preventive measures the farmers might have taken, as shown on the right section of the exhibit:

How the Pigs Were Lost.	How Farmers Can Prevent Many of These Losses.
1232 were farrowed dead	Better breeding stock; better fed sows.
571 were farrowed weak	Better breeding stock; better fed sows.
2844 were overlaid	Guard rails in farrowing pens; less bedding.
326 starved on blind teats	Learn to recognize blind teat.
62 were aborted	Better feeding; sanitation.
405 were chilled	Better housing; better care.
157 had sore mouths	Sanitation.
120 were eaten by sows	Better management.
298 died of scours	Better feeding; sanitation.
134 died of hog cholera	Use immunized breeding stock.
110 died of other diseases or parasites	Sanitation.
73 were injured, drowned, etc.	Better management.
507 died of unknown causes	The farmer should learn the causes of his losses.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit
"The Story of Livestock Farming."

"BETTER BREEDING AND FEEDING."

This exhibit features the "Better Sires - Better Stock" campaign and the "Better Feeding of Livestock" service of the Department, and seeks to show to those who have not joined these movements the excellent results in livestock improvement that are being accomplished by the use of purebred sires and better feeding methods.

The central attraction of the exhibit shows a livestock farm before and after purebred sires were used. The first picture shows out-of-date buildings and unkempt buildings in keeping with the inferior breeding sires used on that farm. Then, by means of an automatic change of lighting the observer no longer beholds the inferior farm scene which is painted on a screen, but looks beyond it and sees in its stead the same farm after the use of purebreds. Modern breeding methods have brought into use modern buildings and equipment, and the owner of the farm can be seen in the foreground showing some of his animals to prospective buyers. Displayed on the gate-post of this farm is the farm sign, reading "Purebred Sires Exclusively Used on this Farm," which the Department is sending upon request to those who enroll in the "Better Sires - Better Stock" campaign.

Educational posters used in acquainting the public with the purposes of these movements are shown in the exhibit. These include the illustrated poster entitled, "Ten Points in Better Feeding," and others. The Feeding Problem Sheet which brings the better feeding service direct to the farmer or other livestock feeder is shown in its actual size.

As an example of the livestock improvement being made in some sections of the United States, the record of one county that has been active in the "Better Sires - Better Stock" campaign since its beginning, October 1, 1919, is given. This county, Pulaska County, Virginia, shows an increase in numbers of purebred livestock as follows from October 1, 1919, to October 1, 1923:

Purebred rams.	135
Purebred ewes.	260
Purebred boars	128
Purebred bulls	78
Purebred cows.	151
Poultry, males, (estimated)	750
Poultry, females, "	3,500

The figures show a gain of 150 per cent in purebred breeding stock, and 578 farmers in Pulaski County are now using purebred sires exclusively for all classes of livestock.

During the first four years of its progress, the "Better Sires - Better Stock" campaign has enrolled more than 12,000 persons owning 1,500,000 animals and fowls.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit
"The Story of Livestock Farming."

"HOW TO USE MARKET REPORTS."

The purpose of this booth is to illustrate some of the various reports issued by the Livestock and Meat Market News Service of the Department. Market reporting offices are maintained at 14 livestock markets and 4 leading meat market centers. In addition the wool market is reported from Boston, the leading wool market of the country. Each of these offices is manned by experienced reporters who spend most of their time during the trading day in the market. These men observe the supplies of the various commodities available, the number and attitude of the buyers on the market, and learn the prices obtained and the tone prevailing in the trade.

Gathering this information, however, is merely the first step in the process of dissemination. To be of value this information must be brought to the attention of those engaged in or interested in these industries, in the most complete form and in the shortest time possible. To accomplish this, the Department utilizes the most modern and expeditious means of communication available. Following are some of the reports issued with a brief description of each.

The Daily Report of Livestock Markets shows the estimated receipts at ten or more markets, the principal features of the trading in cattle, hogs and sheep, for slaughter and those sent back to the country for further finishing, and in addition, detailed quotations by classes and grades. The Weekly Report of Livestock Markets summarizes the main events of the trading without discussing the minor daily fluctuations which may not affect the trend of values.

The Daily Report of Meat Trade Conditions shows the supply, demand and prices for dressed meats at the four largest meat-consuming centers. The Weekly Review of Meat Trade Conditions, in more detail, discusses the various factors operating in the fresh meat trade.

Current Livestock Market Statistics is a weekly summary of the receipts, movements, trading and prices of the various classes and grades of livestock, with comparisons of previous periods.

The Weekly Wool Market Review discusses the outstanding market movements, supply, demand and prices of wool, both domestic and foreign.

Cold Storage Holdings Reports shows the stocks held in cold storage and the reserve supply of meats. These figures should be considered in anticipating market requirements for livestock.

Range and Feeding Condition Reports, Special Pig Surveys, and others indicate the available supplies of livestock to be marketed, and how producers are planning their operations.

The Department makes every effort to get the most accurate market information at the earliest moment possible, and to make it available to the whole country in the shortest time possible. The Department had adopted the slogan - "TO-DAY'S MARKET TO-DAY".

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit
"The Story of Livestock Farming."

"WEATHER AND MARKETS BY RADIO."

The exhibit entitled "Weather and Markets by Radio" is planned to show the practical value of radio to the farmer.

The Radio Market News Service of the Department of Agriculture has endeavored by the development of cooperation with broadcasting stations over the country to furnish to the farmers quick and reliable market information which they have never been able to get before the advent of radio. The Weather Bureau is finding it possible to distribute its forecasts and warnings to thousands of people who have great need of a foreknowledge of weather changes, and in the protection of livestock and property radio will undoubtedly save great sums in providing advance information regarding the coming of storms and cold waves.

The exhibit consists of three illustrated sections. The center section is a graphic representation of the location and activity of the more than 100 broadcasting stations in different parts of the United States that are cooperating with the Department in the diffusion of weather, crop and market reports, as well as agricultural news. The left section is an enlarged photographic reproduction of the interior of a broadcasting station with the announcer busily engaged in reading the market reports while in the background some of the essential mechanical equipment is visible. The antenna swings overhead in this picture and gives visitors some idea of the type of outside equipment necessary for satisfactory broadcasting. The section on the right is an enlarged photographic reproduction of a group of farmers sitting around a radio receiving set, supposedly in one of the farmer's homes, while they take down on note paper some of the market information which they are able to hear. This graphic presentation is typical of what is taking place in farm homes every day in many parts of the country.

Another feature of the exhibit is the loud-speaker arrangement connected with a receiving set which gives to visitors in the exhibit an actual demonstration of the reception of market and weather reports. These market and weather reports are being received from high-powered stations located at some distance from the place of the exhibit and are the same reports that farmers receive. In addition to these reports speeches will be broadcast from high-power stations by the Secretary of Agriculture and other Department of Agriculture officials at scheduled times during the period of the exhibition. These will be received and will be audible to visitors by means of the loud speaker and also by the use of head phones which will be available for that purpose.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit
"The Story of Livestock Farming."

"USE OF MEAT IN THE DIET."

The exhibit entitled "Use of Meat in the Diet" shows in the center section the average or census family sitting down to a table upon which can be seen a good variety of dishes including a beef roast, and in the side sections reproductions of various meat dishes with statements of their value in the diet.

A dish of sweetbreads and kidneys on toast and another of liver and onions are used to illustrate ways of preparing meat organs for the table. Meat organs such as sweetbreads, kidneys, liver, heart and tripe have been found rich in vitamins A and B.

A dish of veal croquettes illustrates the fact that meat left-overs lend attractive flavor to cereals and other foods; a meat stew with vegetables shows that meats combine well with other foods to make well-balanced meals. Meat furnishes iron, and vegetables furnish lime.

A roast shoulder of lamb which has been boned and stuffed, a shoulder roast of beef, and a baked ham are shown to illustrate dishes prepared of meats alone.

Besides being palatable, meat is easily digested and readily assimilated. It provides protein needed for growth and body tissue. It provides fat used in production of energy and for body fat. It provides minerals such as iron needed by the blood and phosphorus used in bone building. And some meats, especially pork, are good sources of vitamin B, a substance necessary for the growth and maintenance of man.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit
"The Story of Livestock Farming."
"MODIFICATIONS OF LARD TYPE HOGS."

The exhibit entitled "Modifications of Lard Type Hogs" is based on a series of experiments by the Animal Husbandry Department of the University of Illinois to determine the differences in rate of gains, economy of gains, and value of the meat of hogs of different types. This investigation was begun in 1922 and is still in progress.

In the initial experiment three types were used, viz., Chuffy, Intermediate and Rangy. The chuffy-type pigs were short, thick, low-set and had lots of quality. This type was quite popular with feeders and packers a decade ago. The pigs of the intermediate type were longer, not so thick and more upstanding, but showed considerable quality. This type is quite popular with feeders and packers today. The rangy pigs were long, rather narrow, quite upstanding and generally lacked quality. They represent a type which is quite popular at the present time with many breeders.

Twenty Poland Chinas of each type were hand-fed in individual feeding pens until they reached a weight of 225 pounds when 15 pigs from each lot were slaughtered. The carcasses were divided into the different wholesale cuts and each cut was further subdivided into lean, fat, skin, and bone. Each hog was also analyzed chemically.

The results of this experiment showed that the intermediate type made the largest and most economical gains, with the chuffy type ranking second, and the rangy type last. The intermediate and chuffy types had the most desirable carcasses, showing much better finish, greater quality and a lower percentage of skin and bone than the rangy type. The hams and bellies of the rangy type were especially deficient in form, quality and finish.

In the 1923 experiment two additional types are being used. A very chuffy type, representing the pigs favored by breeders and packers 20 years ago, and more extreme than the chuffy type of the 1922 experiment, is being used. A very rangy type which won favor in many show rings in 1921 was also added to the experiment. In the present experiment 20 pigs each of the very chuffy, intermediate, and rangy types are being hand-fed individually and 10 pigs each of the chuffy, intermediate, rangy and very rangy types are being self-fed. Poland Chinas again are being used.

While it is too early to predict the final results, the intermediate type has made only slightly better and more economical gains than the rangy type in both the hand and self-fed lots. In the hand-fed lots, the very chuffy type has made slower and more expensive gains than the rangy pigs. In the self-fed lots, the rangy pigs have made slightly better and more economical gains than the very rangy pigs, with the chuffy pigs ranking a close fourth. In general the self-fed pigs have done better than the hand-fed pigs. The carcasses of the rangy and very rangy hogs are usually unfinished at market weight (225 lbs.) and do not carry good hams. They also lack quality and have a larger amount of skin and bone than carcasses from the other types. The pigs from the chuffy and very chuffy types are usually finished before they reach market weight (225 lbs.) Consequently their carcasses at this weight are usually too fat. Most of the pigs of the intermediate type are finished at 225 lbs. and, in general, their carcasses are more desirable from the butcher's standpoint than those from the other types.

The exhibit shows a young pig and a 225 pound hog of each type, a carcass of each type, and wholesale cuts of pork of each type. If any one wishes to examine the carcasses more closely, the attendant will be glad to show them.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit
"The Story of Livestock Farming."

"MARKET GRADES OF STEERS."

In cooperation with the University of Illinois and Armour's Livestock Bureau the Department is showing some market grades of steers and wholesale and retail cuts of meat from steers of the same grades and similar weights.

Eight live steers are shown tied side by side in the following order: Choice fat steer, choice feeder steer; good fat steer, good feeder steer; medium fat steer, medium feeder steer; common fat steer, common feeder steer. The steers have been carefully selected to represent those market grades. The object of the combined exhibit of steers and cuts of beef is to show with actual animals and meats, rather than with illustrations or words, the story of the relationship between the feeder steer as he is ready to enter the feed lot, the fat steer as he is finished and ready for slaughter, and the wholesale and retail cuts of meat that may be taken from that fat steer for ultimate use upon the table of the consumer.

The story illustrated by the steers is of real importance to livestock breeders and feeders. The feeder steers are in one grade or another largely because of the breeding that is back of them. But the grade that the steer will be placed in when he is finished and ready for slaughter will depend upon the care and feeding he has received during the fattening period.

The weights of the steers on December 1, 1923, were approximately as follows:

Choice fat steer.....1400 pounds.	Choice feeder steer..1050 pounds.
Good fat steer.....1250 pounds.	Good feeder steer.... 900 pounds.
Medium fat steer.....1150 pounds.	Medium feeder steer.. 950 pounds.
Common fat steer.....1050 pounds.	Common feeder steer..1000 pounds.

The respective weights of the feeder and fat steers do not indicate their relative ability to make gains during the fattening period. Weight is not a grade factor. The grade is determined by conformation finish and quality.

There will be posted above each fat steer the average price per 100 pounds on the Chicago market, November 26 to 30, 1923, for steers of the corresponding grade.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit
"The Story of Livestock Farming."

"MARKET GRADES OF BEEF."

This exhibit shows wholesale and retail cuts of beef from fat steers of the grades shown in the exhibit entitled, "Market Grades of Steers." The meat is supplied by Armour's Livestock Bureau, and is taken from animals of about the same respective weights as the steers shown in the exhibit mentioned.

The meats are displayed in refrigerated show cases with glass tops and fronts. There is shown a loin, rib, chuck and brisket of each of the grades choice, good, medium, and common, and some retail cuts from the same grades. A placard on each case shows the average wholesale carcass price per pound, week ended November 30 at Chicago, for beef of that grade.

The object of the exhibit is to acquaint the public with the market grades of beef and their relation to the market grades of steers. It shows that beef carcasses and cuts are graded and sold on a quality basis, and it shows with actual price values that the value of a beef steer is determined by the quality of meat it produces. All those interested in beef production can see the direct relation between the best quality of fat steers and the best market prices.

The grades of beef shown are defined as follows by the Department:

Choice Beef

Conformation:
Full, well rounded
Thick flesh.

Finish:
Smooth, uniform fat covering, creamy-white fat deposits in flesh and on interior walls.

Quality:
Excellent.
Flesh, cherry red, firm, fine-grained, well marbled with fat.

Good Beef

Conformation:
Well rounded.
Above the average thickness of flesh.
Slightly angular.

Finish:
Uneven fat covering.
Fat deposits in flesh and on interior walls.

Quality:
Good, above average.
Flesh, light red, firm, moderately fine grained, some marbling.

Medium Beef

Conformation:
Irregular outlines.
Average thickness of flesh.
Angular.

Finish:
Fat covering and interior deposits deficient and quality low.

Quality:
Fair.
Flesh, slightly dark red, coarse grained, no marbling.

Common Beef.

Conformation:
Very irregular.

Finish:
Fat, scant, yellowish and of poor quality.

Quality:
Poor.
Flesh, dark and soft, very coarse, no marbling.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit
"The Story of Livestock Farming."

GUIDE TO RETAIL MEAT PRICES.

The circular chart composed of two concentric disks is a means of giving the consuming public a convenient method of comparing retail meat prices in any locality with those typical of large cities in the Central West. The directions on the chart show clearly how it operates. Briefly, the first step is to find from a newspaper, market report, or other convenient source, the price of livestock. If hogs, for instance, are 8 cents a pound the disks are set so that 8 cent hogs on the inner disk match with 8 cent hogs on the outer disk. Then the observer reads directly through the aperture the approximate retail price of pork chops, ham, bacon, and lard.

The chart is based on actual average prices obtained from various official and commercial sources. Dividing the retail price of meat by the wholesale price per pound of the corresponding live animal gives a series of ratios. A study of prices shows that these ratios are fairly constant and vary only slightly from season to season and year to year. The price of most retail cuts of meat is from 2 to 5 times as great as the price per pound of the live animal. Necessarily there should be a considerable difference since live animals are only from about 50 to 75 per cent edible meat. Besides, there is the cost of slaughtering and handling. Incidentally the ratios are smallest for the cheaper cuts of meats.

The chart is to be considered only an approximate guide and does not aim to tell what retail prices ought to be. It enables the observer, however, to compare retail prices asked by local butchers with average prices as indicated by the chart. Prices vary materially, depending on the quality of meats, service, locality, and numerous other factors. The consumer should take such things into account.

The form of the price chart illustrated is considered preliminary and is not available for general distribution. Opinions regarding it are invited, however, as a means of possible future development. The Department of Agriculture has for distribution tables of figures on which the chart is based. Copies of the tables, accompanied by a brief discussion, may be obtained on request.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit
"The Story of Livestock Farming."

"WEATHER REPORTS"

The chief feature of this exhibit is a large colored weather map, illuminated to show the points of principal interest to the public. This map, made especially for exhibit purposes, is prepared every morning to show current weather conditions. These are based on reports of observations made about 8 o'clock 75th meridian time and forms a picture of the weather prevailing over the entire country. This map is somewhat similar to the maps made up in the larger cities shortly after 8 o'clock every morning and night.

Weather reports are collected by means of interlocked telegraph circuits, by submarine cable, and by radio, covering continental United States, Alaska, Canada, Mexico, the West Indies, and ships at sea. The reports are based, in part, also on the conditions in the upper air as determined by means of kites and pilot balloons. Weather forecasts based upon the information collected are made up and given to the public within three hours of the time the observations were made.

Such forecasts are published in the daily papers, and are broadcasted by radio from more than 100 broadcasting stations in the United States. The farmer who listens in will frequently be able to plan his work to better advantage. Weather reports have a wide range of usefulness, also, to persons in other occupations and to the public in general.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit
"The Story of Livestock Farming."

DEPARTMENT OF AGRICULTURE LITERATURE.

There is a Government bulletin on nearly every problem relating to farming, and the Department of Agriculture aims to send publications to persons who will read and use them. The exhibit includes a bulletin rack containing selected literature likely to interest visitors attending a livestock exposition. Attendants will give information regarding Department literature and how to select and obtain it. Following is a selected list of bulletins related closely to subjects treated in the exhibit:

Farmers' Bulletins:

578. Making and Feeding of Silage.
803. Horse Breeding Suggestions for Farmers.
810. Equipment for Farm Sheep Raising.
834. Hog Cholera.
840. Farm Sheep Raising for Beginners.
874. Swine Management.
1005. Sweet Clover on Corn Belt Farms.
1073. Growing Beef on the Farm.
1132. Planning the Farmstead.
1134. Castrating and Docking Lambs.
1167. Essentials in Animal Breeding.
1170. Meadows for the Northern States.
1218. Beef Production in the Corn Belt.
1229. Utilization of Alfalfa.
1298. Cost of Using Horses on Corn Belt Farms.
1341. Mule Production.

Miscellaneous:

Department Circular 235, Utility Value of Purebred Livestock.
Year Book Separate No. 874, Our Beef Supply.
Year Book Separate No. 882, Hog Production and Marketing.
Year Book Separate No. 845, Hunting Down Stock Killers.
Year Book Separate No. 855, Death to the Rodents.

When ordering literature care should be taken to specify as nearly as possible the kind of information desired. It is best first to obtain a list of Department publications and to give the title and number, taking care to specify whether the bulletin desired is a Farmers' Bulletin, Department Bulletin, or Department Circular. If this is not done doubt and delay may be caused in filling the order. Farmers' Bulletins treat general farm problems in a popular style. Department Bulletins give the results of experimental and research work, while Department Circulars contain information of timely interest on special subjects.

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